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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,847	06/27/2006	Jasko Musaefendic	4518-43	1292

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EXAMINER	
STEELE, JENNIFER A	

ART UNIT	PAPER NUMBER
1798	

NOTIFICATION DATE	DELIVERY MODE
01/19/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/596,847	MUSAEFENDIC, JASKO	
	Examiner	Art Unit	
	JENNIFER STEELE	1798	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 November 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *61-73* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *61-73* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/1/2010 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 61 and 65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 61 describes the laminate system on lines 11-15 "whereby the said dissipating elements are structures presented in form of expanded mesh made out of various metal, non-metal, natural and non-natural materials **and** presented in a form of a rigidised or non-rigidised metal mesh plate, corrugated mesh sheet, mesh sheet, mesh in a tubular shape, spherical shape, other geometric shapes, ribbed, textured, and woven mesh" It is unclear if the dissipating elements are made from two elements (1) the expanded mesh and (2) form of rigidised or non-rigidized

metal mesh plate, corrugated mesh sheet etc. It is unclear if (1) expanded mesh is the genus and (2) are the species of expanded mesh or both (1) and (2) are present in the laminate. The claim is construed to encompass the dissipating elements are presented in the forms of (1) expanded mesh or (2) forms of form of rigidised or non-rigidized metal mesh plate, corrugated mesh sheet etc.

2. Claim 65 recites the limitation "corrugated sheet" in claim 65. There is insufficient antecedent basis for this limitation in the claim. Claims 65 is dependent on claim 64, which is dependent on claim 63 which is dependent on claims 61. Claim 61 excludes corrugated sheet and therefore claim 65 is broader than claim 61 and claim 65 lack antecedent basis for the limitation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 61-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calfee (US 3,755,059) and Chavannes (US 4,358,498) and in further view of Hollis, Sr. (US 3,969,563). Claim 61 describes a high impact strength, elastic laminate system for enhancing impact resistant properties of a laminate structure, said laminate system comprising:

- a first outer layer
- a second outer layer
- at least two inner plies placed between the first and second outer layers;
- at least one dissipating element placed between said inner plies adapted to dissipate and redirect randomly directed local loading applied to at least one of said two outer layers, to tensile loading directed in longitudinal direction of said inner plies; and
    - whereby the said dissipating elements are structures presented in form of expanded mesh made out of various metal, non-metal, natural and non-natural materials and presented in a form of a rigidised or non-rigidised metal mesh plate, corrugated mesh sheet, mesh sheet, mesh in a tubular shape, spherical shape, other geometric shapes, ribbed, textured, and woven mesh (plain, twill or satin weave).
- a polymer matrix in between said first and second layer and said first and second plies,

- said polymer matrix arranged to occupy all the volume not taken up by, and inbetween the said two outer layers, said at least two inner plies and said at least one dissipating element.

Calfee teaches a laminar composite of high impact and shearing resistance comprised of layers of graphite fiber, glass fiber and corrugated metal foil in an arrangement which resists spalling, interlaminar shearing and multipoint failure due to shock wave transmission (ABST). Calfee's laminate is show in Fig. 1 below where **11** is a metal foil layer and equated with Applicant's outer layers**, 12** is a layer of glass fibers and equated with Applicant's inner plies, **13** are graphite fiber layers and equated with Applicant's inner plies and **14** are corrugated metal foil layers and equated with Applicant's dissipating elements.

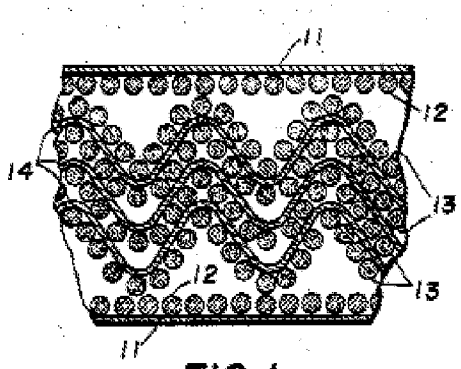
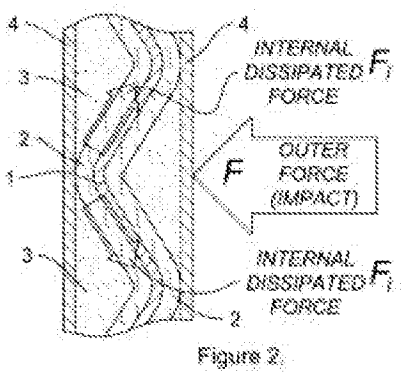


FIG. I.

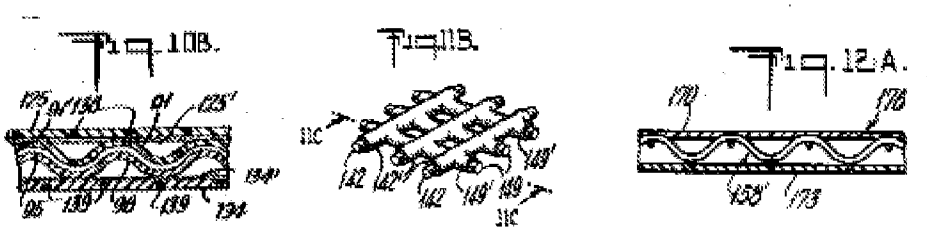
Calfee Fig. 1



Applicant's Fig. 2

Calfee differs and does not teach the corrugated metal foil layers are in the form of a mesh.

Chavannes is directed to a reinforced laminated and corrugated board-like structure which includes a corrugated layer with reinforcing wire elements (ABST). The invention is an improved corrugated material formed of relatively stiff corrugated, plastic covered wire reinforcing elements with paper and/or plastic webs or liners adhered to one or both sides of the corrugated structure. The reinforcing elements may be either coated with a plastic or embedded in a sheet containing plastic in the form of longitudinal and/or transverse elements secured in spaced relationship to form a structure affording strength in the finished material (col. 1, lines 28-45). Chavannes teaches the wires form a grid as shown in Fig. 11B and are then fed through corrugating rollers to form a corrugated grid. The corrugated grid is then covered with a first and second plastic film such as shown in the structure in Fig. 12A and Fig. 10B. Chavannes teaches a corrugated mesh sheet is used to strengthen a laminate sheet.



It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the corrugated mesh of Chavannes for the corrugated sheet of Calfee motivated to produce a laminate with the strength that corrugated mesh wires provide.

Calfee differs from the current application and does not teach a polymer matrix arranged to occupy all the volume not taken up by the layers.

Hollis teaches a protective wall structure that resists penetration and impact. Hollis teaches outer layers of multilayer cloth with at least one inner protective inner layer defined by a rib-like formation defining a series of pockets. The pockets are filled with a polymer self sealing core structure (ABST). The polymer is equated with Applicant's polymer matrix. The structure of Hollis is shown in embodiments in Fig. 4 and Fig. 8 below.

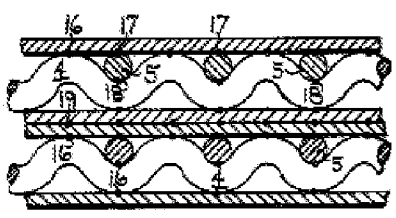


FIG-4

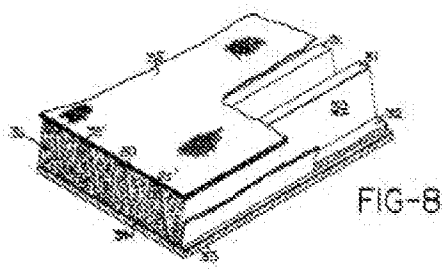


FIG-8

It would have been obvious to employ the polymer resin filled pockets of Hollis in the high impact laminate of Calfee and Chavannes motivated to increase the strength of the composite laminate.

As to claim 62, Calfee teaches additional layers of inner plies and dissipating elements.

As to claim 63, Calfee teaches the function of the inner plies is to serve as reinforcement. Calfee teaches that the glass fiber plies provide greater impact strength and therefore provide an improved laminate if the glass fibers are placed are located on the impact side (col. 2, lines 46-66).

As to claim 64, Calfee teaches the plies are made from S-glass, E-glass fibers (col. 3, lines 23-25).

As to claim 65, Calfee teaches a corrugated metal foil which is equated with Applicant's dissipating element and the corrugated sheet recited in the claim.

As to claim 66, Calfee teaches the metal foil is preferably made from a metal such as aluminum ,beryllium, magnesium, nickel, steel or titanium (col. 3, lines 20-23).

As to claim 67, Calfee teaches at least two dissipating ply elements and reinforcing fibrous plies. Calfee teaches the fibrous plies can have fiber orientations of 0 or 90 degree (Table 2) which would be a unidirectional or cross-ply orientation as claimed. Calfee teaches the effect on fiber orientation is minimal (col. 5, lines 1-11).

As to claim 68, Calfee teaches the fibrous plies are impregnated with an epoxy resin (col. 3, lines 46). Calfee differs and does not teach a polymer matrix between the

inner plies and outer faces. Hollis teaches the polymer matrix which fills the voids can be of a epoxy-urethane elastomer (col. 10, lines 25-28).

As to claim 69, Calfee teaches the outer metal layers can be made from aluminum ,beryllium, magnesium, nickel, steel or titanium (col. 3, lines 20-23).

As to claim 70, Calfee differs and does not teach an additional layer on the outer layers of the composite laminate. Hollis teaches outer layers of multilayered cloth that can be aluminized (col. 7, lines 45-51). It would have been obvious to one of ordinary skill in the art to add additional outer layers motivated to improve the strength of the laminate and provide the desired outer surface.

As to claims 71-73, Calfee in view of Hollis teaches an impact resistant structure as claimed and therefore would possess the property of creating an equilibrium of dissipated loads. Calfee teaches the laminate can absorb impacts of lesser weights than claimed and Calfee differs and does not teach the density of the laminate. One of ordinary skill in the art could have optimized the layer thickness and number of layers motivated to produce a laminate that can dissipate a greater impact.

Response to Arguments

3. Applicant's amendments and arguments with respect to claims 61-73 have been considered but are moot in view of the new ground(s) of rejection. Applicant incorporated the limitation of claim 65, excluding corrugated sheet, into claim 61. Additional reference to Chavannes is presented in this office action, as Chavannes

teaches it is known in the art to employ a corrugated wire mesh in a plastic laminate article motivated to improve the strength of the laminated sheet.

4. Applicant describes and presents evidence of expanded mesh and woven metal mesh. The reference to Chavannes meets the limitation of a corrugated metal mesh. While corrugated metal mesh is not equated with expanded mesh and woven metal mesh, claim 61 does not exclude corrugated metal mesh and corrugated metal mesh. A structure of corrugated mesh would be obvious over a expanded mesh or woven metal mesh unless there is evidence to show that an expanded mesh or woven mesh provides an unexpected result.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on (571) 272-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1798

/Angela Ortiz/
Supervisory Patent Examiner, Art Unit 1798

1/11/2011